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NFPA 704: STANDARD SYSTEM FOR THE IDENTIFICATION OF THE HAZARDS OF MATERIALS FOR EMERGENCY RESPONSE

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NFPA 704

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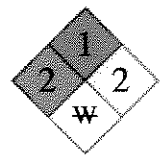
NFPA 704 is a standard maintained by the U.S.-based National Fire Protection Association. It defines the colloquial "**fire diamond**" used by emergency personnel to quickly and easily identify the risks posed by nearby hazardous materials. This is necessary to help determine what, if any, special equipment should be used, procedures followed, or precautions taken during the first moments of an emergency response.

NFPA 704



Fire diamond for Sodium borohydride

Contents

Symbolism

The four divisions are typically color-coded, with blue indicating level of health hazard, red indicating flammability, yellow (chemical) reactivity, and white containing special codes for unique hazards. Each of health, flammability and reactivity is rated on a scale from 0 (no hazard; normal substance) to 4 (severe risk).

	Health (Blue)		Flammability (Red)
0	Poses no health hazard, no precautions necessary (e.g., water)	**0**	Will not burn (e.g., argon)
1	Exposure would cause irritation with only minor residual injury (e.g., acetone)	**1**	Must be heated before ignition can occur (e.g., mineral oil). Flash point over 93°C (200°F)
2	Intense or continued but not chronic exposure could cause temporary incapacitation or possible residual injury (e.g., ethyl ether)	**2**	Must be moderately heated or exposed to relatively high ambient temperature before ignition can occur (e.g., diesel fuel). Flash point between 38°C (100°F) and 93°C (200°F)
3	Short exposure could cause serious temporary or moderate residual injury (e.g., chlorine gas)	**3**	Liquids and solids that can be ignited under almost all ambient temperature conditions (e.g., gasoline). Liquids having a Flash point below 23°C (73°F) and having a Boiling point at or above 38°C (100°F) or having a Flash point between 23°C (73°F) and 38°C (100°F)
			Will rapidly or completely vaporize at normal

4	Very short exposure could cause death or major residual injury (e.g., hydrogen cyanide, phosphine, carbon monoxide)	**4**	atmospheric pressure and temperature, or is readily dispersed in air and will burn readily (e.g., propane). Flash point below 23°C (73°F)
	Instability/Reactivity (Yellow)		**Special (White)**
0	Normally stable, even under fire exposure conditions, and is not reactive with water (e.g. helium)		The white "special notice" area can contain several symbols. The following symbols are defined by the NFPA 704 standard.
1	Normally stable, but can become unstable at elevated temperatures and pressures (e.g. propene)		
2	Undergoes violent chemical change at elevated temperatures and pressures, reacts violently with water, or may form explosive mixtures with water (e.g., phosphorus, potassium, sodium)	**OX**	Oxidizer (e.g., potassium perchlorate, ammonium nitrate, hydrogen peroxide)
3	Capable of detonation or explosive decomposition but requires a strong initiating source, must be heated under confinement before initiation, reacts explosively with water, or will detonate if severely shocked (e.g. ammonium nitrate)	**W**	Reacts with water in an unusual or dangerous manner (e.g., cesium, sodium, sulfuric acid)
4	Readily capable of detonation or explosive decomposition at normal temperatures and pressures (e.g., nitroglycerine, Trinitrotoluene)		

Non-standard symbols

Note: These hazard symbols are not part of the NFPA 704 standard, but are occasionally used in an unofficial manner. The use of non-standard symbols or text may be permitted, required or disallowed by the authority having jurisdiction *(e.g., fire department).*

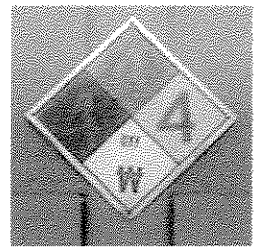
- **COR**: Corrosive; strong acid or base (e.g. sulfuric acid, potassium hydroxide)
  - **ACID** and **ALK** to be more specific
- **BIO** or ☣: Biological hazard (e.g., smallpox virus)
- **POI**: Poisonous (e.g. Strychnine)
- ☢: Radioactive (e.g., plutonium, uranium)
- **CYL** or **CRYO**: Cryogenic (e.g. Liquid Nitrogen)

Two plastic squirt bottles labeled with the **NFPA 704** color code for hazardous materials identification.

See also

- Hazard symbol
- HMIS Color Bar

- Hazchem
- Hazmat



A particularly hazardous building's hazard diamond sign.

References

- 1910.1200 OSHA Hazard Communication (http://www.setonresourcecenter.com/safety/hazcom/FR_59_6126%20Hazard_Communicaton.pdf)
- University of Oregon Chem Labs - NFPA Hazard Identification System (http://chemlabs.uoregon.edu/Safety/NFPA.html)

External links

- NFPA 704 frequently asked questions (http://www.nfpa.org/faq.asp?categoryID=928)
- Pamphlet produced by the City of Milwaukee summarizing NFPA 704 code requirements (http://www.milwaukee.gov/ImageLibrary/User/dnscms/pdf/broc/hazmat12.pdf)
- Listing of NFPA 704 ratings for many chemicals (http://webcomm.bcd.tamhsc.edu/bcdfacilities/msds_main.html)

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